



King County Elections' response to Anitian tabulation upgrade security review and risk analysis

In December 2007, King County employed the technological security experts at Anitian Enterprise Security to perform a security review and risk analysis. While there are several risks identified, the report concludes that "Anitian is ultimately confident that KCE can operate this system in a secure and reliable manner." King County has detailed responses to Anitian's findings in the executive summary below.

The executive summary of the report provides an overall assessment of the King County Elections environment using the "three pillars of security:" confidentiality, integrity, and availability. While detailing minimal risks requiring corrective action, Anitian reports that King County Elections "has done an effective job of developing good security procedures" and "can operate the new elections system securely."

Anitian reviewed King County Elections by observing the entire election environment, to the greatest extent possible at the time, and collaborating with the system vendor Premier Election Solutions and the Office of the Secretary of State. The hardware and software were examined in the context in which they are used, not solely in a laboratory environment and tested only by technologists.

Anitian assessed King County Elections' procedures as "generally sound overall," three areas were identified for concern in the executive summary: ballot cage logs, lack of business continuity procedures and draft procedures for ballot adjudication. King County would like to take this opportunity to discuss these areas.

- **Ballot cage logs.** This issue was previously identified by King County Elections. The current system supports detailed logging; it does not provide ongoing activity reports. As highlighted in the report, it is important that Elections has the ability to quickly obtain information on specific cage doors. Resolving this issue is of the utmost importance to Elections and we have been working with King County security personnel on a solution to this concern.
- **Lack of business continuity procedures.** In the event of an emergency, it is important to have business continuity procedures. This area was previously identified by King County Elections. Elections will put in place a process of establishing procedures as recommended in the report.
- **Draft procedures for ballot adjudication.** Since completion of Anitian's report, Elections has done extensive work creating and refining ballot adjudication procedures. First tested in our May trial election with over 20,000 ballots, we perfectly reconciled all ballots received, scanned and tabulated. The trial election consisted of department staff marking ballots to mimic voters, testing the

procedures in a “real life” environment using established reconciliation practices. Elections procedures for all sections are examined and refined as needed.

Anitian found “availability of the Assure system” presented the most concern. As a new system, significant challenges and frustrations were initially experienced, but considerable progress was made and ultimately a successful mock election was conducted. One of the four stages in the acceptance testing process, Elections conducted a volume/stress test by running 1.5 million ballots through the system. This was accomplished without any crashes, system errors, or loss of data that could jeopardize a real election. Specifically, Anitian identified two system security risks in the executive summary: deck deletions and accessible vote unit card tampering. These areas are discussed below.

- **Deck deletions.** Anitian identifies the potential impact of this risk as high while Elections is confident that the possibility of decks being deleted from the system undetected is nonexistent. Deck data is maintained in two distinct software applications in the tabulation system. While data can be deleted in the legacy GEMS program, the PCS program still maintains the data in a secure, encrypted format that Anitian confirms “would be extremely difficult, if not impossible, to manipulate the data in the database as it is stored.” In order to maintain the highest standard of security, King County Elections intends to formally request that the vendor correct this issue in GEMS. Vendor response will in no way impact our commitment to a continued reconciliation of GEMS data in a format that is outside of GEMS. This daily reconciliation effort ensures we are making correct adjustments to batch data throughout the process, confirming our internal work.
- **Accessible voting unit card tampering.** While an Anitian technician was able to tamper with the memory card used in the accessible voting unit, it was recognized that “it would be very difficult for an attacker to successfully execute a card tampering attack. KCE has numerous procedures that provide very effective mitigation of this threat.” The voter verified paper audit trail and uniquely numbered seals add to the physical security of the equipment, providing detection of tampering. In an effort to maintain the highest standard of security, King County Elections will formally request a technical correction to mitigate this issue with the accessible voting units.

A response to the detailed findings of the report will be prepared and released in the near future. King County Elections will continue to work with the Office of the Secretary of State and the system vendor to mitigate further the issues identified in the report.